

A comparison of this plan of airing the tympanum with some of those in general use will show that it may be preferable in some cases.

In the application of the Valsalvian experiment there is always considerable difficulty in forcing air into the tympanum, and the experiment often fails altogether. In any case it requires great straining, the vessels of the head and face become turgid with blood, and the membrana tympani appears more congested than when inflation is performed by other means. The experiment, however, can be made by the patient himself, an important point in many cases of tympanic disease where the application of remedial measures is frequently needed in the absence of the surgeon.

In Politzer's method, beside the objection to drinking from a tumbler common to many persons at a clinic, there is always the nozzle of the air bag to be inserted into the nose, a very unpleasant proceeding to most individuals. In addition the time occupied by swallowing is so short that it is often difficult to hit the exact moment for the air douche, which is also generally given with more force than is beneficial.

In the modification of Politzer's plan, recently proposed by Gruber, the obnoxious air bag is retained, and the Eustachian tube is not always opened in a perfectly satisfactory manner.

The Eustachian catheter, while the most certain of all means, of course irritates the throat and pharyngeal opening of the tube, more or less. It is not requisite, however, to mention the dangers arising from its unskillful manipulation, because, like any other instrument, it should not be used on the living subject, except by the educated hand.

If the membrana tympani be examined during the performance of inflation by any of these methods, a little arborescent twig of vessels is seen to run down the handle of the malleus, and more or less congestion appears to be inseparable from the act; but if the pharyngeal extremity of the tube is simply opened in the manner previously described, and atmospheric equilibrium is allowed to establish itself on the two sides of the membrana tympani, there seems to be absolutely no injurious reaction upon the local circulation.

1004 VINE ST., May 20, 1876.

ART. XI.—*Hereditary Multiple Exostosis; Four Cases, with Remarks.*

By V. P. GIBNEY, A.M., M.D., of the Hospital for the Ruptured and Crippled, New York. (With two wood-cuts.)

AMONG the many cases of interest presenting from day to day at the out-door department of the Hospital for the Ruptured and Crippled, the following, from an hereditary point of view, seem peculiarly interesting,

and consequently I have endeavoured to make the description, to a certain extent, minute. Case II. was the first observed, and was brought to the hospital by a neighbour, who feared that the child's prospects for becoming a hunchback were very good, and therefore deemed a spinal brace the one thing indicated.

CASE I.—Albert R——, æt. 34 years, a Prussian musician, came under observation March 13th, 1876. He has the appearance of being a hearty vigorous man; has always enjoyed good health, and has long since ceased to feel any alarm about the tumours which now so disfigure his extremities. The peculiar hardness, the relation sustained to the long bones, and the history, remove all question of doubt as to the diagnosis.

I succeeded in finding no less than seventeen exosteal growths, located as follows: symmetrical tumours on the crests of the spines of the scapulae; a spike-shaped process $2\frac{1}{2}$ inches in length, with a tripodal base, on

Fig. 1.



Case I.

the inner aspect of the right humerus, upper fourth; a ridge-like prominence near the distal extremity of the first phalanx of the middle finger of right hand, dorsal and radial surface; small node near proximal extremity of same phalanx; large sessile tumour seated on anterior surface of right femur, lower third, measuring around base $10\frac{1}{2}$ inches, over surface, vertically, $4\frac{1}{2}$, transversely 5; closely attached to the last named, at its inner surface, a bilobate growth $2\frac{1}{2}$ inches vertically by 2 inches transversely; a well-defined bony ridge on the outer side of femur an inch or so above external condyle; an oval-shaped tumour, likewise sessile, near the outer surface of the left femur, at the junction of the middle with the lower third, measuring around base 12 inches, vertically 5, transversely $5\frac{1}{2}$; a ridge above the external condyle, symmetrical with the one on opposite limb; a large ovoid mass, growing apparently from the posterior

surface of the right tibia, giving to the calf a circumference of $18\frac{1}{2}$ inches against a circumference of 15 inches at the same point fellow limb, while the size just below the knee is 14 inches, above malleoli 9; two abnormal tuberosities about the size of a half walnut from the upper fifth of the fibula; from the upper fourth of the tibia again, anteriorly, three or four about the same size as those on fibula; a potato-shaped tumour firmly attached to the head of the left tibia, giving a base measurement of 8 inches, vertical 4, and transverse 3.

It will be seen that the only attempt Nature made at a symmetrical disposition of the exostoses was on the scapulae and the femora, that she furthermore was careful to locate the same where they were likely to produce the least injury; the only two causing any marked interference with

the joints being the growth near distal extremity of the phalanx, subluxating the finger outward, and the one near left knee-joint producing genu-valgum. The right calf has the appearance of exuberant development, and the superficial veins are decidedly varicose. On the outer side of right leg, near the apices of the tumours, are two or three superficial cicatrices, the result of ulceration, the patient informs me, four years ago. Two similar cicatrices are situate on the inner aspect of left leg. The left upper extremity, as well as the ribs, is free from any deformity.

The urine gave a specific gravity of 1028, and a microscopical examination failed to detect anything abnormal. The patient, in reply to questions concerning the early development of the growths, states that his parents first observed "small lumps" on his lower extremities when he was four years of age; that they grew slowly until he arrived at the age of puberty, and then ceased to grow. The process on the humerus he thinks, however, was larger when he was ten years of age than it is now, and from his tenth year till puberty decreased in size to its present magnitude. He claims to have been subjected to no treatment. His father, he reports, was similarly affected, and a brother, *æt.* 40, now living in Germany, has "hard tumours on his legs." His wife has none, though three children are the subjects of the next three cases reported.

CASE II.—Lizzie R., *æt.* 11 years, well developed, and enjoying a fair degree of health, presented March 8, 1876, for examination. Eighteen distinct exostoses were discovered. Comparatively large-sized tumours, two and a half inches transversely by one and a half vertically, seated on the crests of the spines of the scapulæ, presented well-marked deformity. Immediately in front of the bicipital ridge of each humerus can be felt a distinct tumour about the size of a peanut. On the palmar aspect of the right ulna lower third, on the radial side of the first phalanx of the index finger, and on the same side of the second phalanx of the middle finger, nodes were observed. On the left side, above the epiphysis of radius, a node stood out quite prominently, while the dorsal surface of the first phalanx of all the fingers near the proximal extremity, and the third metacarpal bone distal extremity presented small nodes. The tenth rib on left side, near its middle, was the seat of a node. A small tumour above the internal condyle of the left femur, and another on the upper third of the tibia, completed the list.

The law of symmetry was not observed in this instance, except on the scapulæ. I could get no history of rheumatism or injury. The father's attention was first directed to these growths after she had turned her third year, and the nodes on scapulæ and rib were the first to appear. No inconvenience is experienced except a frequent headache, which I am unwilling to believe has any special connection with the dyscrasia. The parents are under the impression that the tumours are increasing in size.

CASE III.—Charles R., *æt.* 9 years, seen March 15, 1876. The boy is hardy and well developed, his head being unusually large. The tongue is thick, and apparently hypertrophied, giving a decided lisp to his speech. In this case I made out twenty-eight, varying in size from a pea to a walnut, located in the following order: near the acromial extremity of each clavicle, about the centres of the sixth and eighth ribs on each side, along the spine of each scapula, near the epiphyses of both radii and both ulnæ, symmetrical nodes are to be found. The forearms, likewise, present a marked outward curve. Unmatched tumours are located near the insertion of the deltoid right side, on the dorsal surface of the first

phalanx of the ring finger, near the proximal end, and on the palmar surface of the first phalanx of the ring finger.

There are several unmatched tumours on the lower extremities, and two or three approaching to symmetry. They are so well defined, however, that I thought a better idea could be given by representing them in the accompanying wood-cut. On the right side an oval tumour, seemingly

Fig. 2.



Case III.

symmetrical with the one on the left, can be seen above the internal condyle of the femur. This, however, is continuous with the condyle, and smaller than the other, which is two inches above the condyle, is elongated and ridge-like. The muscular development makes both more perceptible to the touch than to the sight. On the upper fifth of the tibia is seen a comparatively large conical protuberance, with a smaller one immediately below, which latter has a symmetrical growth on the left side. At the junction of the upper with the middle third of the fibula a bony excrescence can be easily felt, though it is not sufficiently large to be seen. A similar one, an inch or two higher, can be seen on the left side. Above each pair of malleoli are tumours very nearly symmetrical. On the left, above the external condyle of the femur, one can easily make out a conical exostosis. The urine gave a high specific gravity; in other respects it was normal. None of the tumours in this case were observed prior to the fourth year. While an infant he was exceedingly delicate, but since the

second summer has enjoyed good health. It would seem from the history of this case, and from the curvature of one or two of the long bones, that a rachitic diathesis was present. I am disposed to regard it, for obvious reasons, merely a coincidence. Like his sister, he suffers much from headache.

CASE IV.—Annie R., a plump, hearty looking girl, four years of age, was examined March 15, 1876, and on both clavicles, near the acromial end, small nodes, symmetrically placed, could be seen. The spines of the scapulæ presented the same prominences, only smaller in degree, as was observed in the preceding cases. None were discovered elsewhere. The father had only noticed these quite recently.

It may be well to state that I have examined the cranial bones of these four cases with some degree of care, and have failed to find any abnormal protuberances, except a soft wart-like tumour, about the size of a half nutmeg, on the crown of head in Case I.

No theme opens a wider field for speculation than heredity. We seek for causes in all departments of medicine, and after diligent search are apparently satisfied. Specifics in therapeutics, from time to time, render clear the subject of etiology, while post-mortem examinations frequently throw a flood of light on theories, and almost as frequently leave us still clinging to untenable ones. Many lesions of the nervous, as well as of the osseous system, are referred to that ultima Thule, syphilis, and when this scourge of humanity *unfortunately* fails to be present, we oscillate toward heredity. We then know that the father or great-grandfather was the subject of a like disease, and through some mysterious process propagated it to the descendants.

I have questioned the subject of Case I. very rigidly as to his ancestry, and have sought for some cause of this diathesis in his father, who seems to have been the first in the ancestral line thus affected. Three or four paternal uncles were soldiers in the Prussian army, and he thinks that his father served a term in early manhood. Some pathological writers think that the musket, as used in the Prussian service, induces near the deltoid muscle, with comparative frequency, a growth called the "drill bone." Yet even in the reported cases an osseous diathesis is said to have existed. The old man seems to have enjoyed excellent health, fell from a windmill, a distance of eighty (?) feet, receiving only a slight injury (this fall was six years after the birth of the son, whose history I have just recorded), and lived to an advanced age. In the absence of facts, then, I venture the opinion that a drill bone was occasioned while in the army, and that to his children and grandchildren were transmitted the deformities. This, at best, is only a fanciful theory, and I give it for what it is worth. In the family are two brothers both of whom are known to have exostoses, and three sisters, no one of whom is thought to have anything of this nature. In the third generation, however, the female descendants show, at a comparatively early age, tumours, both on the clavicles and the scapulæ.

I need not dwell on the pathology of this lesion, other than to refer those interested to the writings of Stanley, Virchow, Paget, and Billroth. The exostoses herein described are most likely of the spongy or cancellous variety. Those of the ivory variety appear on the bones of the face, skull, pelvis, and occasionally the great toe, and occur so seldom that they are classed by Billroth among the curiosities. The spongy exostosis is covered with a layer of cartilage, and ossifies toward the centre. At the age of puberty ossification ceases.

Passing over the question of diagnosis, I propose to devote a short space to the complications arising, meaning thereby the bones most frequently involved, and the injury mechanically to neighbouring parts.

Mr. Paget¹ reports the case of a boy in St. Bartholomew's Hospital, who had symmetrical tumours on the radii, humeri, scapulæ, fifth and sixth

¹ Surgical Pathology, p. 541.

ribs, fibulæ, and internal malleoli. On the ulnar side of the right forefinger, he had an unmatched tumour, which proved so inconvenient that, at the father's request, Mr. Lloyd removed the finger. The father of this child had as many, or even more, tumours, and all had existed from his earliest childhood. No direct ancestors, or any other children, had similar growths; but four cousins, one female and three male children of his mother's sister, had as many of them as himself.

In the same hospital, Mr. Stanley¹ had a case, male, æt. 31, with fifteen distinct exostoses, symmetrically located near the articular extremities of the legs and arms, the growths having begun in early infancy. He was a drunkard, and in his frequent falls bruised the exostosis near the wrist, inducing necrosis. A removal, with good results, is recorded. A half brother of this man had tumours similarly situated. The mother had married twice, and one son by each marriage inherited the peculiar diathesis.

In the Transactions of the Pathological Society of London,² Mr. Wm. Adams reports a case on which he operated for the removal of a bony tumour from the posterior surface of the right fibula. Profuse suppuration followed; but in six months the patient recovered.

In the service of Dr. Poore,³ at the Charing Cross Hospital, a case occurred presenting exostoses at the sternal ends of clavicles, inferior aspects of the spines of scapula, the upper extremities of humeri, carpal extremities of the radii and ulnæ, points near one or the other extremities of most of the metacarpal bones, upper portions of femora below great trochanters, upper and lower ends of tibiæ and fibulæ. No one of these growths demanded removal. A child of this man, four years of age, appeared at the same time, and pathologically was a complete miniature of the father. Attention was first called to this child when nine months of age. The maternal grandfather and one sister were reported to have had similar tumours.

In my own report I find that the first case has one flat bone represented, but the seat of the tumour is at no one of the centres of development. The origin of the deltoid and the insertion of the trapezius are in intimate relationship with its base. Seven of the long bones are represented, the epiphyses of only three of which are involved, and the line of muscular attachment in no one of which is at all implicated. The second case, as well as the third and the fourth, gives the same flat bone as a point of lesion. Fifteen long bones in the second, nineteen in the third, and two in the fourth are involved. The epiphyses are in close proximity, but can scarcely be predicated as conjoined even. The muscular attachments are likewise undisturbed. An additional flat bone, the rib, I should have stated, in the second case, and four in the third, are found affected. It would seem, then, as I have previously intimated, that, when heredity figures to any extent, Nature very carefully selects those bones, and those points of a bone which are least likely to interfere with the functions of joints or muscles.

As opposed to this I shall very briefly refer to some instances where

¹ Med. Times and Gazette, vol. ii. 1853, p. 39.

² Vol. xxiii. p. 211.

³ Lancet, Nov. 29th, 1873, p. 771.

heredity is not involved in the etiology, but where injuries or disease take an active part.

Mr. Stanley in his work on *Diseases of the Bones* reports a case with an exostosis on the humerus dividing the ulnar nerve. A second case he refers to wherein the exostosis grew from the posterior surface of the clavicle, pressing upon the subclavian artery, and thus simulating aneurism. Sir Astley Cooper's case¹ in which a bony growth from the sixth or seventh cervical vertebra compressed the subclavian artery is familiar. Andral² reports a case in which an exostosis from the body of a vertebra pressed upon the œsophagus. Dr. Reid³ reports that a conical exostosis in a case under his care grew from the second cervical vertebra, and caused fatal compression and softening of the spinal cord. A boy in St. Thomas's Hospital⁴ had an exostosis from the inner table of the skull, producing epilepsy, which was relieved by a trephine. Mr. Henry Arnott⁵ removed a small bony tumour of this nature from the lower end of the right femur in a girl æt. 18, the pain and stiffness at the knee-joint being an indication for the operation. Erysipelas followed, and death supervened one month from the date of the removal. Symmetrical tumours were found post-mortem on pelvis, on each rib near both costal and spinal extremities, on sides of the bodies of the vertebræ, and on the lateral processes of the same. The first sign of any exostosis was at the close of an attack of acute rheumatism when eight years of age. In a case presented by me at the New York Pathological Society, March 24, 1875,⁶ bony growths existed in the neighbourhood of the hip-joint, giving rise to some of the symptoms of morbus coxarius. The greatest number of exostoses found on any one individual was in the case reported by H. Ebberth,⁷ sixty-five being the number. Acute rheumatism seemed to have been the immediate cause of so extraordinary a development. The long, short, flat, and irregular bones were duly represented.

As to treatment I know of nothing that is even reported as successful. In one case I have used lactic acid for a short time, with no satisfactory result to record. Removal, of course, is indicated if an exostosis interfere seriously with a joint or vital organ. A point of interest has been raised by Dr. John Chiene⁸ in the treatment of pedunculated tumours by fracture. His point is that the growth thus broken off may be absorbed, and one case he reports, of a boy æt. 10 years, who fell while at play and broke a pedunculated exostosis loose from its attachment. Complete absorption was found to have taken place at the end of a year. Mr. Maunder,⁹ on the strength of this report, forcibly broke an exostosis from

¹ Surgical Essays by Cooper and Travers, p. 128.

² Pathological Anatomy, Translation, vol. ii. p. 278.

³ London and Edinburgh Journal Med. Sciences, March, 1843.

⁴ Travers, Further Enquiry concerning Const. Irritation, p. 285.

⁵ Transactions Path. Society Lond., vol. xxiii., 1872, p. 207.

⁶ Medical Record, April 21th, 1875, p. 300.

⁷ Deutsche Klinik, 1862, No. 9, p. 91.

⁸ Ed. Med. Journal, July, 1874, p. 50.

⁹ Lancet, Nov. 7th, 1874, p. 657.

the bone, located near the knee, with no unpleasant effects following the operation. He subsequently reported that the osseous tumour had re-attached itself to the bone, but at different points, so that the functions of the joint were undisturbed.

135 East 42d Street.

ART. XII.—*A Supposed Case of Rabies Canina treated with Strychnia and Woorara; Recovery.* By B. A. WATSON, M.D., Surgeon to Jersey City Charity, and St. Francis Hospitals, Jersey City, N. J.

SUNDAY morning, Feb. 6, 1876, between ten and eleven o'clock, I was summoned in great haste to see Mr. McC., of this city, aged about forty-five, a strong, able-bodied man of temperate and industrious habits, who had previously enjoyed uniformly good health. I found him in his sleeping apartment, a back parlor, suffering with a severe chill, which was accompanied by chattering of the teeth, violent retching, and the occasional vomiting of a little dark grumous fluid. There was suffusion of both eyes, equal dilatation of the pupils, marked congestion of the conjunctiva of the right eye, but slighter of the left, turgescence of the vessels of the face, giving the countenance a livid appearance. Respiration sighing, pulse frequent and irregular, and the tongue furred, grayish-white. He was highly nervous, apprehensive, and unwilling to be left alone. Says "there is a sensation of tightness or squeezing" over the præcordial region. In answer to my question, "how do you feel?" he replied, in a nervous, jerking voice, "I am all right—nothing the matter with me." He then called for a glass of water, which he took and tremblingly drank, evidently to convince me that he did not have hydrophobia.

I directed him immediately to be put in bed, well covered with blankets, mustard draught to be applied to the epigastrium, bottles of hot water to be placed around him, and the temperature of the room to be raised as soon as possible to 80° F.

I then withdrew from the room, and learned from the family the following history, viz.: On or about the 25th of November last, Mr. McC. was presented with a young Newfoundland dog, which appeared at the time to be in a healthy condition; it was playful and good natured, ate and slept well; but within a month exhibited signs of illness, becoming restless, frequently starting up from apparent sleep, growling, barking, and snapping at imaginary objects. Soon after these symptoms were observed, the dog bit the servant girl, both of Mr. McC.'s children, and a young nephew. Mrs. McC., being now terribly alarmed, informed her husband, when he came home at noon, that the dog was sick, and insisted that it should be sent away from the house. The husband endeavoured to quiet her fears, assuring her that he would examine the dog, and if anything were the matter with it he would send it off. He then proceeded to make the examination, and, while thus engaged, was bitten through the index finger of the right hand near the root of the nail. The examination being satisfactory, the dog was drowned. The wound readily healed. These events occurred about the 20th of December last. The servant girl¹ (previously

¹ See accompanying report of this case by Drs. McLoughlin and Culver.